Northern Ireland Assembly

Committee for Enterprise, Trade and Investment

OFFICIAL REPORT (Hansard)

Mutual Energy: Moyle Interconnector

31 January 2013

NORTHERN IRELAND ASSEMBLY

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Members present for all or part of the proceedings:
Mr Patsy McGlone (Chairperson)
Mr Phil Flanagan (Deputy Chairperson)
Mr Gordon Dunne
Mr Paul Frew
Mr Alban Maginness
Ms Maeve McLaughlin
Mr Stephen Moutray
Mr Robin Newton
Mrs Sandra Overend
Ms Sue Ramsey

Witnesses:

Mr Paddy Larkin	Mutual Energy
Mr Gerard McIlroy	Mutual Energy

The Deputy Chairperson: I welcome Mr Paddy Larkin, chief executive of Mutual Energy, and Mr Gerard McIlroy, the company's finance director. Please make an opening statement after which members will have an opportunity to ask questions.

Mr Paddy Larkin (Mutual Energy): Thank you very much, Chairperson. *[Interruption.]*

Mr Dunne: Are you bringing gifts? *[Laughter.]*

Mr A Maginness: He has brought the interconnector.

Mr Larkin: This is a piece of one of the cables from the Moyle interconnector.

Mr Dunne: No wonder it is not working. *[Laughter.]*

The Deputy Chairperson: Do you think he should put it back, Gordon?

Mr Larkin: This is a piece of the cable that was at the bottom of the sea for 10 years. It was taken out around the end of 2011 and the beginning of last year. That is just to give you a idea of what the cable looks like. I will pass round some information that will give members a detailed breakdown. The point is that the inside of the cable is extremely complex; it is not just a piece of copper inside an outer sheath.

This morning, I will talk briefly about our activities; first, about what is different about Mutual Energy, and then about the Moyle interconnector. I know that you are interested in that, and, in particular, the cable faults that have occurred. I will then give you a short update on the Island Magee storage project, with which we are a local partner.

Mutual Energy was set up to work for Northern Ireland consumers. The company is owned and governed by customers; it has no shareholders, so there are no dividend payouts going out of the business and any cash reserves that the company has are retained in the business for the benefit of consumers.

The business is 100% debt financed, which keeps costs down for customers. Our assets include the Moyle interconnector, the Scotland to Northern Ireland transmission gas pipeline and the Belfast gas transmission pipeline, which takes gas into Belfast. Those assets were acquired by Mutual Energy in 2003, 2005 and 2008 respectively. Up to March 2012, as shown in the briefing paper, operating the assets under the mutual model has saved customers over £90 million.

The Moyle interconnector is a high-voltage, direct-current interconnector, consisting of two 250 megawatt units, each of which has a cable that runs under the sea connecting Scotland and Northern Ireland. The interconnector was completed by NIE in December 2001 and was purchased by Mutual Energy in 2003. It provides major benefits for consumers. It produces 500 megawatts of capacity, which keeps the lights on but also avoids having to build a 500 megawatt power station here.

The lower-cost power that comes in from Britain pushes prices down here; it pushes the wholesale price down in the single electricity market. We recently conducted a detailed study that looked as far back as April 2008. We found that, during that period, customers have saved over £100 million a year on average because of the lowering of the wholesale price.

On the technical side, the interconnector achieved world-class availability up to September 2010. What happened in September 2010? Since then, four similar cable faults have occurred; one was onshore and the other three were offshore. One of the four has still not been repaired and, consequently, the interconnector is operating at half capacity. The faults are occurring between the outer copper conductor and the outside of the cable. This is not a normal experience when it comes to cables and there is a real risk that there will be further cable faults of that type.

The cables are buried about one metre below the seabed, which is itself in water depths of up to 150 metres. The cable has to be brought up to the surface to be repaired and joined.It is highly expensive and involves specialist and very scarce vessels, equipment and personnel. It cost over £30 million to repair the two sub-sea cables that were repaired in 2011 and early 2012. To put that in context, to replace the suspect parts of the cable would cost about £60 million. To further put that in context, the recently commissioned east-west interconnector between Dublin and Deeside cost £600 million. So, interconnectors are an expensive business. It is very expensive to repair them.

Previously, we had insurance to cover the cost of repairs. The repairs that have already been carried out had insurance cover on them. However, since the risk of these types of faults has increased, the insurers have declined to insure the cable any more. So, any further repairs would have to be paid by ourselves and ultimately by customers.

The cable faults may well happen again. The question is what can we do about it other than just constantly spend money to repair them. For the short term, we have come up with a cable reconfiguration. That is a different way of connecting the cables to avoid the suspect parts of the cables and the bits that we are worried about. We have tested and approved that, and the system operator is happy with it. If we have another fault on the operational cable, we will switch to that reconfiguration and keep the interconnector going. That gets us to only half capacity, but it means that we can rely on half capacity going forward.

Longer-term solutions include the interconnector being reconfigured. Instead of it being two 250 MW units, it could be one 500 MW unit. The other solution is for the problem parts of the cable to be replaced entirely by laying new cables. Those solutions will take several years to put in place, but, as regards reinstating the benefits that we talked about, they are probably the best option and better than frequent repairs. Work is under way to assess the feasibility, cost and estimated timetable of those longer-term solutions to get a bit more specifics so that we can make a decision.

As I said, replacing the cable by laying another cable is probably the most straightforward and understandable solution, but that could cost about £60 million. That is the cost of reinstating the

benefits of the interconnector, which we are saying may be £100 million a year. However, we need to ensure that any investment on behalf of consumers is clearly beneficial. We need to ensure that it is at the best cost and that it is sufficient. We have involved, and will continue to involve, the Utility Regulator fully in the decision-making process and ensure that any decision has its full support and is properly challenged.We have also kept, and will continue to keep, the key stakeholders involved and included. We are keeping you guys informed about what is going on. We have also kept parties like the Department of Enterprise, Trade and Investment and the Consumer Council fully up to date and listened carefully to their views. As Mutual Energy is a mutual company, we will ensure that customers' interests are at the heart of any decisions that we take.

I will touch briefly on the Islandmagee storage project. Northern Ireland is on the periphery of Europe, and, to date, we have relied heavily on the North Sea for our gas security and flexibility. The North Sea's supply is in fairly sharp decline. We have identified that, over the next 10 years, there will be a real need for local and flexible gas storage to ensure that we have adequate gas supplies to meet our needs and adequate gas flexibility to meet the needs that are driven by having a lot of intermittent renewable generation on the scene. In effect, as wind goes down, gas has to come up. So, gas needs to be as variable as wind is.

In that regard, Northern Ireland has suitable geology in the Islandmagee area. With BP's involvement in the Islandmagee storage project, there is a real opportunity to bring that gas storage to Northern Ireland on a commercial basis with little or no cost to customers. The project is estimated to cost about £400 million. The idea is to store about 500 million standard cubic metres of gas, which is more than enough to supply Northern Ireland for about 60 days, in caverns within the salt layer below Larne lough; the salt layer is dissolved to create a cavern in the salt. The depth and thickness of the salt and the local infrastructure means that the project is ideal from a capital cost point of view.

The project will bring a huge local boost to the local and, indeed, wider economy. It was granted planning permission in October 2012. All the other consents, such as marine consents, are progressing well. However, for the project to work commercially, it must be accessible by all the markets in the region. The Northern Ireland gas market is too small to support a commercial project of this scale. The region as a whole actually needs additional gas storage. So, the regulators in Belfast, Dublin and London have been working together to try to put in place appropriate gas transportation arrangements that enable the gas to move freely across the region to wherever the gas storage is located. That will not necessarily happen by default; there is quite an effort involved. When regulators have to work together, it tends to be a lot more difficult. They need all the encouragement and support that any interested party can give them to make sure that we can get through that process and make the project viable.

That is all that I have to say as an opening. Thanks very much for giving us your time and the opportunity to pass the information on to you. We are happy to take any questions that you might have.

The Deputy Chairperson: Thanks for that update, Paddy; it is very useful. My first question is this: how did you manage to get that thing through security?

Mr Larkin: With very little bother actually.

The Deputy Chairperson: You are setting a dangerous precedent. *[Laughter.]*

Mr Frew: The faults have occurred between the outer insulation and what is effectively a neutral conductor. One cable is completely out of commission, so we are using only one cable. Are we not even using the main conductor within the faulty cable?

Mr Larkin: I talked about the short-term solution. If we get a fault on the other cable, we have a reconfiguration, whereby we basically use the good conductor on each of the cables to keep half the interconnector going. There is quite a bit of testing to be done on that at each side, mostly from an earthing point of view, and while this is a neutral conductor, because the length of the is cable 63 kilometres, it is at zero volts at one side but at 1,000 volts at the other side. So, even though it is a neutral, there is quite a bit of voltage. If we get a fault in the other cable, the short-term solution is to use the good parts of the cables to make sure that half the interconnector stays reliable.

Mr Frew: You can easily reconfigure your instruments at either side of the land mass to counter that.

Mr Larkin: There is a bit of work and cost in it. It probably cost about £150,000. That included link cables at each side, but we had to test it all. We ran into telephone interference at first, but we got that sorted out and eventually, in August, took the interconnector out and tested it. We did the same in December. The system operator is now content that this works and so it is a good backup to have.

Mr Frew: No one here needs to be sold how useful and important interconnection is in this day and age. It is as important as generation to any region or state. However, that should be a two-way flow. We should import cheaper electricity but also have the ability to export. With the present configuration, where only one cable is being used, can we also go the other way? Can we import and export?

Mr Larkin: The simple answer is yes. When it is fully available, Moyle is 500 MW and, technically, able to go both ways. There is a restriction at the Scotland end on how much it can receive. It restricts the amount that we can export to 350 MW, but now that we are now working at half load — 250 MW — that restriction does not bite. We are able to go to 250 MW each way.

Mr Frew: When the cable was laid, it was classed as cutting-edge technology and a new way of doing things due to the design of the cable. However, faults started to occur, and I notice that they all occurred in the warmer period of the year. Has that been part of your fault diagnosis?

Mr Larkin: The investigations to find out exactly, not just roughly, why that happened and why it did so after 10 years and not after two or three is still ongoing, and experts from as far away as South Africa are working on it. Yes, temperature is a lot to do with it, and we have been looking at things like the moving of the Gulf stream and the very cold winters that occurred beforehand. The summers in which the faults occurred were not particularly abnormal, but the winters that preceded them were. There were very cold winters followed by moderate summers. So, we are considering all those things, and we do not have a definitive answer yet on the precise cause. Knowing the precise cause may well lead to knowing whether there is anything that we can do to prevent it. The answer to that is probably not unless we can manage the climate. We also want to know whether there is anyone else responsible who we can look to to assist us in the cost of repair.

Mr Frew: Has that type of cable been laid anywhere else in the world since?

Mr Larkin: No, is the simple answer. However, a very similar cable is going in currently in Estonia by the same cable manufacturer. I am very surprised that they have not asked us about it, but it is currently being installed.

Mr Frew: I see that the latest fault is still to be located. I imagine that, if there are two faults on that single cable, it makes it triply hard to locate.

Mr Larkin: The first one has been repaired. A fault occurred on land, and it was fixed and put back in service. Then, during the summer of 2011, there was a fault on each of the sub-sea cables. They were both repaired and put back in service by January or February 2012. In June 2012, a further fault occurred, so there is just a single fault in that cable.

Mr Frew: I understand. When the cable is faulty, how do you know that there are not two faults occurring simultaneously?

Mr Larkin: We only know that after the event. We can do what are known as "Wheatstone bridge tests" from each end which give us an approximate location, to the nearest kilometre, for the fault. We can tell then that, if there are two faults, they are within the same kilometre. With faults, what happens is that you get a breach between the copper and the steel; in effect, the earth. On the outside of the cable, you might get a pinprick or something the size of a 5p or 10p coin. The cable is 53 kilometres in length, under the seabed, under the sea and that is the size of the fault that we are trying to find. People ask: "What are you still looking for it?" And we have to tell them: "Yes". It is possible to dive and access some of this cable, and that is the case with this current fault. However, much of this cable is *[Inaudible.]* with water. You cannot send divers to it, and you must use remotely operated vehicles. There are operated remotely from a boat that has to hold its position within 30 centimetres of the fault.

Mr Frew: When we get to the *[Inaudible.]* fixing the fault. If you have to lift the cable up back to the surface, or you have to do it on the ground, must you put two joints in at either end of the fault?

Mr Larkin: Yes. The cable is laid at the seabed. When you take it to the surface, there is a gap between the two pieces so, basically, you cannot just join it together and put it back down. You have to cut out the faulty section, and then you join them with a spare piece of cable. You cannot then lay it back down onto the seabed, or it will crumple. So the new piece of cable has to go in like a loop. So it comes up out of the sea onto the boat in a loop, and sits back down almost like a hairpin.

Mr McIlroy: The weight of this cable is significant. We did not pass this sample around because it is very heavy.

Mr Frew: By fixing the fault and putting in two joints, you open up a potential for a weakness, not only in the outer sheath and the neutral conductor, but also in the main conductor.

Mr Larkin: Yes. I totally agree with that. We want to minimise the number of joints that we make offshore, because it is a high-risk area. I would say, however, that the inner part of the cable, which is the high-tech or high-voltage end, has oil-impregnated paper insulation, and that is very well understood. It is a technology commonly used in many cables. It is the low-tech end of this cable which is unique to it, and that is the feature whereby another conductor is wrapped around the cable, and then insulation is wrapped around that. That is the bit that has been giving us trouble. We have never had to fix the inner bit. Because it is high-voltage, it generally fails only for electrical reasons. We are able to test it electrically.

Mr Frew: As you join that cable, you are weakening it.

Mr Larkin: Certainly, every joint that we put in increases the risk. We would be much better with a uniform cable.

Mr Frew: Which brings me to my point. Surely, instead of fixing each fault as it occurs, when it is really the split-concentric or the neutral cable which is the problem, would it not be better — you said that it cost £60 million to replace a fault.

Mr Larkin: No. It would cost £60 million to put in a new cable that will replace that conductor.

Mr Frew: How much does it cost to fix a fault?

Mr Larkin: We spent £30 million in fixing two faults, so they cost about £15 million each on average.

Mr Frew: Would it not be better to lay two new neutral cables alongside each of those cables, and then you can get both cables back up, and you get to full capacity?

Mr Larkin: I would have to agree with you. However, we have quite a bit of work to do on the feasibility of that and to get a properly challenged and scrutinised set of costs, with time estimates and everything else. The simple answer to your question is yes; it is a much more robust plan to fix the thing properly, rather than be chasing our tail, spending £15 million now, and maybe the same again next time. Every time we fix it, we are introducing more risk into the cable by putting another joint into it.

The only difficulty with that more robust solution is that it takes longer, so Northern Ireland has 250 MW less capacity for the next couple of years until that solution is put in place. It is lower cost in the long term, but it is more cost up front rather than just fixing a single cable. What you have said is exactly what we are working on at the minute. We are gathering all the data and information that we need for that, with a view to taking decisions on the exact way forward. As I explained, there is another way of doing it. Instead of using two 250 MW units, you can have one 500 MW unit.

Mr McIlroy: Using the same cable.

Mr Larkin: Yes, so you go between plus 250,000 volts and minus 250,000 volts, whereas the two 250 MW units go between plus 250,000 volts and zero, and zero and minus 250,000 volts. That is all on-land work; a complete —

Mr Frew: A reconfiguration of your switch gear.

Mr Larkin: Yes. There are a number of longer-term solutions that basically mean that we do not need that suspect part of the cable any more.

Mr Frew: My concern is that, while we repair and fix faults, we are actually damaging and weakening the conductor, which, in the long term, could be suspect. With any joint, no matter how good the joint or the technology is, there will always be *[Inaudible.]*

Mr Larkin: We have a fault at the minute about 2 kilometers off the shore of Scotland. We have not taken a decision to repair that fault. That is still an open-ended question. We need to find it so that we can see it from the outside and see what has caused the damage, whether it has been damaged by something scraping along it or whether something odd has happened. Only when we have that information will we decide whether it is worth fixing. It could be something different from what we saw before.

Mr Frew: That investigation would have to take place. It is not only about the potential of the cable — the main conductor — to be weakened; it is the fact that you have to lift the cable and then lay it down again. Surely there is potential for a trawler or something to damage it —

Mr Larkin: I might look to employ you shortly.

Mr Frew: Give me a shout in a couple of years' time. I might need that.

Mr Larkin: Exactly. Gerard talked about hanging off a boat. There could be a 7-ton cable hanging off the boat. That is a huge pull on it. When you are repairing it and manhandling the cable, you can create problems. The cable is 2 kilometres off Scotland. The one that we repaired in 2011 was in and around the same area. The big question is whether the current fault has been caused because we manhandled the cable.

Mr Frew: What about cost? It is costing someone. I think that I read somewhere about the insurance capacity taking a hit. Surely that has to be paid somehow. How is the company paying for that, and how much is the consumer paying?

Mr Larkin: All the costs to date have been paid from the company's reserves. When the boat was there, we paid for it from the company reserves. We have insurance cover to cover the costs to date. The insurance was paid and settled for the fault that occurred in 2010. The claim is ongoing for the faults that occurred in 2011. Dealing with an insurance company for a £30 million claim, I expect that it will be ongoing. It is more than likely that it is going to be years rather than months for that size of a claim. That is the costs to date. To a certain extent, because we had the insurance and that in place, we very quickly decided to fix the fault because the costs were covered. From this point on, there is no insurance cost; there is no safety net. Any costs that are incurred to the extent that we have the cash reserves, we pay for them out of the cash reserves, but that will be depleted pretty quickly whenever you do a £60 million project. The difference is basically collected through the use of system tariff on customers, so the costs of any repairs, any replacement cables or any reconfiguration on the onshore section from this point forward will, ultimately, fall on consumers. That is one side of the equation. The other is that consumers get the benefit of interconnection. When interconnection comes back in and lowers the wholesale price of energy, all consumers get a lower price for electricity. The key thing is to ensure that, whatever we do, customers clearly benefit from it. On one side, this is a good investment for customers that gives a better return than what they pay out. The second thing is to ensure that the way that we organise the costs is properly tendered and engineered so that the cost is as low as possible and then we ensure that it is carried out as efficiently as possible to bring it through. That is the gist of our plans going forward.

Mr McIlroy: Time is also an important aspect. We have costs in time. When we come for the decision process, we will expect to have two or three long-term engineering solutions identified, each with a different cost and each with a different timeline. The importance of timeline is a system question, so, from our point of view as a business, we can see what is the best engineering cost balance and say that that is the one that we want to go with. However, the system operator may have a view that, if our best cost engineering solution is introduced in 2018, the one that is introduced in 2016 is a better one for the system because, in 2018, he has problems in other areas.

So, a lot of the work becomes getting all of the information so that, from our point view, we know about the cost to a reasonable degree before we start the project and about the timing. The timing in this can be different. If you are laying new cables, the big factor with the time is the manufacture through the cable in that you have to consider where you are going to get the factory space to manufacture the cable. The other factor is consent in that you have to consider what consents you need to lay a new cable and how long it will take to get them. If you doing a control room one, you do not need factory time but the brain power, and that is extremely limited worldwide. The specific electrical engineers who do this are in extreme demand, and it is their time, but you do not have planning issues of laying cables. These are the things that all have to be put together for a reasoned decision.

We will have a view and an opinion on a lot of it, but there will be certain aspects of it to do with how it impacts on the wider Northern Ireland system. So, for example, one of the solutions may be to have two cables, and that gives you two 250 MW units. The benefit for Northern Ireland for two 250 MW units is that, if a trawler comes across and drags an anchor and drags one of your cables, you have lost one 250 MW unit but the other is fine. If you go for the other mode of operation, which is similar to the east-west interconnector, if you lose one cable, you have lost the lot. These are the ones where the system operator will have a view about what is best for the system.

Mr Larkin: On that, I do not know whether you are aware that, for environmental reasons, the old station at Ballylumford needs to close in 2016. It is unclear what is happening with Kilroot and so on. So, there are capacity pinch points coming up, and the cheapest way to do this might be with a five-year programme, and you might have to pay more money to accelerate it to get it in earlier. The system operator may well say that, if it does not have this interconnector, it needs a new power station, so someone has to do it.

Mr Frew: That brings me to my last question. Security of supply here is a big issue, and what we have is this interconnector sitting at half capacity with a big risk and a very high percentage chance that the live cable will go this summer. We would then have nothing coming through.

Mr Larkin: That is why it is was so important to us to get this reconfiguration that we talked about where we are using the central core, and that is why we spent so much time testing it and proving it. At this stage, we have a fallback situation if that happens, and that fallback situation will put it back in at 250 MW, and it will be reliable at 250 MW.

Mr McIlroy: It will take probably 24 or 48 hours —

Mr Larkin: Less than that. It would take less than a day to switch it over. That is a very good point, and, in fact, last year, when the interconnector was out completely in January 2012, the system was really tight, to the extent that the Department was holding weekly meetings to consider how we would manage this if this went to the plan of load-shedding. With 500 out, the system is really tight. With 250 in, it is comfortable. It would be more comfortable if there was 500 there, but it is manageable. So far, throughout this winter, the interconnector has been sitting at 250 and it has been fine.

One of the other big issues with security of supply is the North/South tie line that has been in the planning system for a long period. That will mean that we can rely on everything from the South, whereas I think that we can only rely on a couple of hundred megawatts from the South at the minute. That is about it.

Mr Frew: That is the end of my questions. I stress that I do not think that people realise how close Northern Ireland came to having a blackout, a lights out or a load-shedding scenario over the past couple of years. Interconnection is vitally important, and the Moyle interconnector is only one aspect of it. The North/South interconnector is a totally different ball game, and I get frustrated that our plans for that are not more advanced at this stage. My humble opinion is that we need to get to the point with the Moyle interconnector that when we are laying the two new neutral cables to use the cable when we can and forget about using faults on the neutral cable. We are storing up the potential for more damage and problems in the future for the most important element of the cable, which is the main conductor. Thank you.

The Chairperson: Before I bring in Mr Newton, I want to apologise to you, Mr Larkin, for missing your presentation. It is good to see you again.

Mr Newton: I suppose that Paul has covered many of the points. Mr McIlroy, from a business perspective, you must be in a very concerned position with so many imponderables and with your insurance company having indicated that it is going to withdraw support for any future claims.

Mr McIlroy: It is obviously very difficult to say the least. When we lost both cables, we lost all revenue instantly and for a prolonged period. The travel agents TUI suffered a 5% to 10% drop off in its revenue and got itself into real difficulties. We were in the fortunate position that we run the business in a very conservative manner so that we were in a position to be able to find £30 million at short notice to build a new cable. We still have cash reserves.

The interconnector and most networks are funded through use-of-system charges. Unlike the land-based network, which calls on use-of-system charges every year and collects them through everybody's tariffs, we had option revenue every year and were able to defer our use-of-system charge. That made it slightly different. Until we are back in business, the collection of the use-of-system charge will be the norm for the interconnector, the same as the rest of the network. It is for us to manage how we do the future capital expenditure. We will need to consider how much it is, over what period the spend will occur and what the terms are likely to be.

It is obviously very challenging for the business, but it was something that we were fortunately well positioned to meet in the first instance. We are still in a strong position now, because the revenue flow through the use-of-system charges keeps us going on the business as usual side. We now get to decide properly what the course of action is for the long-term fix and how we are going to finance it.

Mr Newton: Should consumers be concerned about the potential for what might be regarded as a major energy downturn in supply ? I was going to say "disaster", but maybe that is too strong a word.

Mr Larkin: I suppose that there are two elements —

Mr Newton: Mr Frew also raised the point about your ability to raise money by exporting energy. The Moyle interconnector not being there affects customers in two ways. One is the cost to fix it. We talked a lot about that; potentially £60 million over a couple of years. At the other end is probably a bigger issue, which is that you have less of that cheap power — half of it — coming in from Britain. From that point of view, you would expect the price to rise. It is very difficult to take a single instance and put that straight through the bills because there are a number of things that affect the cost of bills, mostly the price of fuel. If the price of fuel is going up and down, bills will go up and down, and that will have another ripple effect.

The other thing that has happened just by chance is that, at the point in time when we have problems with this, a new 500 MW interconnector, feeding the same market that our customers are buying from, has come into play. Now, it also has problems getting up and running. It is actually running at half load too, so, overall on the island, there actually is still 500 MW of capacity. Customers would say that, from a price point of view, we are fairly neutral, but then you say that we expected to have 1,000 MW by now, so we are not as well off as we could have been. It is very tricky to say that, ultimately, our electricity bill is going to be higher next year because of this. The answer is that I do not know, because there are so many other factors that come into play. I think that it should be of concern for customers, but not nearly as much concern as, say, the gas price. So if they are not sitting worrying every day about the gas price — "Oh God, that has gone up. It is now 70p a therm and it was only 50p last year" — then this is of much less concern.

Mr McIlroy: You asked about the export. We run the Moyle interconnector and provide the capacity for the supply companies to move the power from A to B, and the market price determines what way that flows. In every year bar one that has been a very strong flow from GB to Northern Ireland. There was one year — I think it was 2008 — when it was very flat and there was some flow the other way. You will see a lot about wind in Ireland and Northern Ireland and the potential to export that back into GB. From a market perspective, when the system gets excess power, which is usually wind in the night-time, the system operator sometimes has to pay GB to take it, so the market signals for that movement of wind, when we have plenty of it and they need it, are just not there at the moment. It is quite unusual to see lots of —

Mr Larkin: But we do expect that that is going to become a bigger issue as time goes by. At the moment there is really only excess wind during the night. It is supply and demand, so the amount of wind stays the same, but the demand has gone down, so you have excess wind. It happens at night. Prices are pretty darn low and they are running nuclear across the water, so the wholesale prices are

down next to nothing anyway. However, as more and more wind comes on, you will see excess wind in the shoulder periods of the day and in the morning time. We do expect that there will be more demand for exports on the interconnector. In fact, we are actually working with the National Grid to try to remove the limitation I talked about earlier on the GB end, so that, by 2020, there will be no restriction on exports. You actually need the interconnection to allow it. Some of them will not build wind generators unless they know that they are going to be able to generate. It is interconnectors that give access to the market for that.

Mr Newton: I do not think there is any question about the interconnector. You indicated that it was the only one of its type in the world, yet, in your paragraphs outlining the longer-term solution, you state:

> *"The number and nature of the faults is abnormal for underground cables and raises questions in relation to the future reliability of part of the cables."*

Had you a choice of cables to go for? I think you said you were going to lay stone this time. If they came to you and asked for your advice, what advice would you offer them?

Mr McIlroy: Switch it off.

Mr Larkin: Is anyone recording this? *[Laughter.]* The language may not be too pretty.

A Member: Unfortunately, they are.

Mr Larkin: In terms of the uniqueness of the cable, there are not very many HBDC interconnectors in the world, and each has a unique cable designed specifically for that interconnector. We have a specific type of cable that no one else has. The special thing about this type of cable is that it is known as an integrated return conductor. To make a light work from a battery you need a + and a - , so it is two pieces of copper as conductors. This cable puts the two pieces of copper inside the same cable but concentrically, so you have a central piece of copper and then an outer piece of copper. That is what is unique.

One of the biggest risks for a power cable is that it is hit by an anchor, a container drops off a boat onto it or a ship sinks on it. This way, you have one cable, instead of two if the two conductors were separate, so you halve the risk of that happening, which is a very small risk as it stands. The cable is also easier to lay because you have only one trench. So, there are marked advantages, and I guess at the time there was an expectation that that type of cable would become more widespread. It did not, not because of the design particularly but because other interconnectors tend to be of higher voltage and power. Once you get into higher voltage and power, that starts to get very big and you just cannot handle it.

Underground cables are designed for a 30-year life. Most last for 60 years. There are no moving parts. It a piece of metal, a piece of plastic and a piece of lead that are laid in the ground. What's to happen? Cables in Belfast have been running for 60 years with no problems or faults. Generally, the big risk with underground cables is if something hits them, such as a digger digging them up or an anchor hitting them.

It is very abnormal to get four faults. We went from being a normal cable with no faults to being the worst cable in the world within the past couple of years because we have four faults and that level of abnormality. If the guys from Estonia came and talked to us, I would tell them to take a very close look at what has happened to our cables and make sure that they have that covered off with their own design.

Mr Frew: A split concentric cable is not a new thing but it must be the insulation.

Mr Larkin: In 275 KV it is. When you pass electricity through a cable you create heat. At high voltage and high power the key thing is to get rid of that heat. There is no insulation on the overhead lines, so the heat gets away straight away. Once you put it in the ground, you start to enclose that heat. As the temperature rises, it gets harder to get the electricity through it. On the face of it, you would say that putting all those layers on the cable is really bad because you are really insulating that central core and causing problems, so that is generally one reason why it is not used. If you go on higher power and voltage, it just gets too big, there is too much insulation and it does not work.

A Member: Fascinating.

Mr Newton: Paragraph 2·3 states that feasibility studies are continuing into a long-term solution. In eight weeks' time, you will have concluded those studies and have an answer in the second quarter of 2013.

Mr Larkin: Yes, hopefully.

Mr Newton: This is such a serious situation. You indicated that you are keeping all parties up to date.As soon as Mutual Energy comes to a decision on the future, the consumer needs to know so that they have confidence. Northern Ireland, generally, needs to know to have the confidence that we are going to face the challenge and that we can come out of it successfully. According to your schedule, we are a number of months off realising the full picture and the solution is. We need to know what that is going to be.

Mr Larkin: I am happy to come back to the Committee when we have made the decision to fill you in on the factors that went into that decision and why we took the decision. The idea is to get to a decision and then get out to tender to get it firmed up. I am happy to do that if you want me to.

The Chairperson: I think that everybody would be in agreement with that. It is important that we are kept as fully up to date as possible. That would be very helpful.

Mr Newton: At the end of quarter 1 — really only for confirmation at that stage, before you make your decision — could we know when the studies have been completed?

Mr Larkin: Yes. The studies are an evolutionary process. The first cut of the studies have been done, but that raises other questions that need to be looked into.

Mr Newton: That is what gives me concern. You have tied yourself into the timetable of the studies being completed in quarter 1 and the decision and a tender being issued in quarter 2. When you complete your studies, you will have raised a number of questions that need to be addressed in the longer term. That indicates that the second phase of that tendering issue may not be achieved.

Mr Larkin: The studies are well under way. As it stands, we are at the second and third passes of the studies. We have built in time to hopefully get to the bottom of the problems. However, I take your point: this is new. It is cutting-edge stuff. Unexpected things can happen, but you have to have a plan.

The Chairperson: So, you will keep us as fully appraised as you possibly can at the various stages?

Mr Larkin: Yes.

Mrs Overend: Thanks very much for coming today. It has been really interesting to hear the technical details. The outworkings for the consumer are of great concern. Forgive me for simplifying this — you might have said it earlier — but what was the life expectancy of the cable when you first put it in?

Mr Larkin: It was a 30-year design life. If you design something to last for 30 years, you expect that it will be more. It is very hard to design something to go for 30 years and then break and be useless.

Mrs Overend: You buy a car, and you expect how long you are going to get out of it. You build in a return or a savings plan to be able to afford to buy your next car once you have paid off the car. Did you have some sort of mechanism built in for the available resources?

Mr Larkin: Apart from the insurance, we did not make any other provisions for the thing breaking at 10 years or needing that level of investment at 10 years. If you buy a car, you expect it to last for 10 years; you do not expect it to be complete scrap after two years. I am not saying that it is complete scrap, but you do not expect a major investment, such as an engine rebuild, after two years.

Mr McIlroy: In the financing, we had to allow for the chance that a boat with an anchor could drag across and hit it. Something disastrous could happen; one of your converter stations could require a

rebuild. When the bit came to the bit, we had the money and we were able to do it.We have an expectation, but we have to allow for the risks of bad, unexpected things happening. The nature of the equipment and the kit is that everything is expensive. For some of the pieces of equipment, if you went to order a new one you would have a three-year lead time. All of those things had to be taken into account when we had to design how much money we ran with, how much we kept in reserves, how quickly we would be able to get it if we needed it and how we managed that. To that extent, we always had to allow for the fact that, not this particular problem, but a big problem could happen.

Mrs Overend: In making your decision on whether to lay a new cable for the long-term solution, there are huge things that you will have to take into consideration, like the life expectancy of the next cable that you put down.

Mr Larkin: In fairness, the manufacturer of it did design it for 30 years. All underground cables have at least a 30-year design life, so any further ones will have the same design life. You scrutinise that. Obviously the cable providers are the experts. You ask them as many questions and put them over as much detail as possible, and you get as long a warranty as you possibly can on it. It was not us but NIE that put that cable in place, and we were not there, but in any of the documents that we have seen, NIE assessed the design to the extent that it could. It required a 30-year design life and the manufacturer provided that. It required a warranty for as long as possible and got a five-year warranty on the cable at sea, recognised that joints were a higher risk at sea and actually got a 10-year warranty on joints at sea. I guess it got as much as it could at that point in time. I suppose the other question is whether the manufacturer was fraudulent in what they did. Were they trying to pull the wool over people's eyes and did they slip something in? All of those questions are other things that we are looking at that may well arise, but at this stage it would be premature to say anything on that.

Mrs Overend: It will be interesting to hear that as your discussions go on.

The Chairperson: Clearly, your company will be seeking legal advice around those matters.

Mr Larkin: Quite a lot of legal advice. The legal advice is ongoing.

Mr Dunne: Thanks very much, gentlemen, for your presentation. I think a lot of the issues have been covered. We appreciate you bringing in the sample, and we all joke about it, but it does give you the scale of it at first hand.

Mr Larkin: You are welcome to lift it. *[Laughter.]*

Mr Dunne: To me, it is a major quality issue. There is a major failure here by the supplier. You asked the question, and Sandra touched on it. Was the cable tested and verified? It had met the specification. You touched on that briefly and said that you looked at the documentation. I suppose, to be fair to you, you were not there. You were not involved in the project when it was going in. Part of your investigation is looking back at how the cable was manufactured, how the processes were controlled and where the failures are in order to find out the real root cause of what happened. I take it that you are doing that?

Mr Larkin: Yes. Since the second fault came out of the water and we confirmed that it was the same as the first fault, we have started the process. There is a lot of technical work to be done to find out, as I was saying earlier, exactly what has caused it — not just roughly what has caused it, but exactly what has caused it.

The second side of it is, on the legal end of it, what rights do we have? Going back to what Sandra was saying, if you buy a car you get a warranty on it and you get a best promise from the manufacturer, but if it does happen to go on fire or fall in a heap after the warranty, you only have a limited amount of comeback on the manufacturer. You have got a comeback if the manufacturer was completely and utterly negligent in what they did — if they should never have put an exhaust running through the petrol tank, or something. But you generally go into it in good faith, there is a warranty period and it comes out the other end. A very specific and quite a large contract is involved in constructing this. That contract places liability in certain places and everything else, so there are legal issues.

We are looking into all those issues. They are certainly not closed off as far as we are concerned, but it is probably premature to say what will come out of it at the other end.

Mr Dunne: You will obviously look very closely at the specification of a replacement; how they have tested and validated it.

Mr Larkin: I want to see one that has been operating for quite a long time.

Mr Dunne: Yes. You would need to be assured that it is fit for purpose, has been tested and validated and the evidence is there to prove it. I suppose that that is what you are trying to look at again.

Mr Larkin: The one thing that I would say is that the type of cable that we will be laying — Paul will probably understand this better — is a straightforward low-voltage cable. It is not high tech. So, we hope that we will have a reasonable choice. That having been said, there are probably six factories in the world that could make it. We are hoping that all six of them would give us a choice and, hopefully, there is a standard design. It would be even better if there were an off-the-shelf cable that has been in place and used. Based on our experience, you can be assured that reliability will be a key part in choosing a new cable.

Mr Dunne: Like a lot of engineering failures, it is the basic rather than a rocket science issue that you —

Mr Larkin: The high-tech end of this cable —

Ms S Ramsey: Because most of them were men. *[Interruption.]* Sorry, I was just stating a fact.

Mr Larkin: The high-tech end of this cable has been fine and given us no problems. It is the low-tech end, and perhaps —

Mr Dunne: Basics

Mr Larkin: — when you go to do something, the concentration and the brainpower are put into the bit that is new and scary; whereas, the low-tech end is par for the course.

Mr Dunne: Insulation. I will just ask a couple of questions on the gas bit. The gas storage facility will consist of seven caverns, which are obviously there.

Mr Larkin: No.

Mr Dunne: Are they not?

Mr McIlroy: What you have is a salt sequence. You create the cavern by putting in seawater that dissolves the salt, and then you take the brine out. So, you create the caverns by pumping in seawater in various fancy ways. You can shape the cavern. The idea is to make it egg-shaped, which is the strongest for holding gas. The salt is sealed around the outside and it becomes a natural salt cavern.

Mr Dunne: A natural liner then. There is no —

Mr McIlroy: Yes, the cavern itself is just salt. There is no other man-made substance added to it.

Mr Dunne: What about the environmental impact? I will get in there first before somebody else does.

Mr McIlroy: The issue of the environmental impact has been going on since 2007 or 2008. On the plus side, salt storage may be new to Northern Ireland and relatively so in Britain as well because Britain has always had North Sea gas and has not needed this, it is not new in Europe. That is because places such as Germany and France, which do not have natural gas, needed the storage. So, the technology in how to make this has been 40 or 50 years in the making. That is quite good, unlike the Moyle cable, where we were the pioneers. This time, we have got 40- or 50-years' worth of other people doing it and to come up with the analysis.

The other big plus in the environmental study that we had was that Aldbrough storage facility in Yorkshire. As I said, GB has not had as much salt storage as most of Europe, but it is planning to have it. That is because the North Sea has gone from meeting 100% of UK demand to 40% in 10 years. There has been a massive fall-off, and Britain was suddenly in a position of needing storage. Aldbrough is in the same salt sequence as our project. It started in 2005 and used the same techniques to create the caverns; it had all the same issues. That was very beneficial for us from the point of view of that, when we are doing the environmental impact, we had not only the history but an example that started in 2005. They did five caverns and started in 2005. Those were completed, and nine caverns were started in 2007.

The environmental consultants were able to go to Aldbrough and take all the data that it had. So, we not only had modelling of what would happen but something current under UK conditions and with UK monitoring. For example, they did online constant real monitoring of the brine discharge. They put in crustacean pots, which sounded to me like they put a lot of crabs in pots along the line and saw what happened to them. They did the actual monitoring with sea life throughout the duration to see what would happen, and they had fish studies. A boom and cameras were put across. From a study point of view, they have some of the best results in the world on brine outfall. They are finished and have seen what happened and the effect afterwards. They are able to speak to the lobster fishermen, because they have a big lobster industry around Yorkshire. From the point of view of environmental impact, as a project, the consultants were in a very good place in that they had access to all that data and information on the same salt sequence and the same techniques. As I said, they started the second ones in 2007. So, they were going on their second nine caverns while we were putting the environmental impact in, but the 2005 ones had been completed. So, from an environmental impact point of view, it was a major advantage.

Mr Dunne: Any gas storage that I am aware of has to be pressure-tested. Will this be pressure-tested?

Mr Larkin: Absolutely. You have to be specially licensed for gas safety by the Health and Safety Executive. It will be a control of major accident hazards (COMAH) site, for example . I think that gas is stored at 200 bar of pressure. Our gas pipelines transport gas at around 70 bar maximum, but the 200 bar subsurface all has to be fully tested. At a mile beneath the ground, it will not have any effect, but, as it gets closer to the surface, all the linings in the holes going down to the caverns have to checked and tested.

Mr Dunne: What are the advantages? You have two months' storage. Does that enable you to purchase gas in advance? Is that part of where the savings are?

Mr McIlroy: There are a number of advantages to storage, one of which is the security of supply. All the gas that comes into Northern Ireland comes through our pipeline. It runs from the UK through the south-west of Scotland through our Scotland-Northern Ireland pipeline (SNIP) and supplies two thirds of our electricity on the gas network. Security of supply is more important than it was historically, because, as I said, we used to think that we were on the periphery, but we were not really because we were beside the North Sea and were first, if not second, in line to the gas. The gas now comes into the UK from Norway, through Russia and through Holland or through liquefied natural gas (LNG) terminals from Qatar or wherever. So, we are last in line now. The big difference with security of supply means that if there is a problem anywhere along that line, we have big lump of gas in Northern Ireland. It does not matter who owns it; the fact that it is physically in Northern Ireland means that, under the condition that they cannot use it anywhere else and only in Northern Ireland, the gas gets released into Northern Ireland. Sixty days' supply is 60 days of peak load with everything running.

Mr Dunne: For the Province?

Mr McIlroy: Yes. Look at average load: we use three or four million cubic metres a day, and this is 500 million cubic metres. We could last a long siege with that amount of gas. It is more important than it has been previously because, previously, the North Sea was not far away and we had the network. The other big impact for us, as a business, that is probably even more important is the network. Because the North Sea is falling off, the pressure on the gas that is coming to feed Northern Ireland is going down. There are contractual pressures, and you need pressure to pump the gas out to all your areas.

The contractual pressures are set, but we were physically getting gas of much higher pressure, which allows us to meet our demands and quickly. The nature of everything is changing for Northern Ireland. As the wind comes on, you are having the effect that the gas plants are not running, are not anticipating running and are not taking over any gas. The system operator expects the wind to be blowing, and the gas plant is not scheduled Then, at very short notice — a gas plant will get four to six hours' notice to do with wind — the gas plant needs to come on because the wind does not blow. So, all through the day, the gas plant has not ordered any gas and then it changes its nomination to that it needs the gas now. Physically, our pipes can only transfer so much gas. It will get tight in two years', three years' and four years' time. As we head through that with more and more wind getting up, you will get to a point, maybe in two winters' time, when the gas plant will say that it needs an amount of gas and will not be able to get it. It will be told that it can be given a certain amount and that is about it, at which point the arrangements are already being put in place that the gas plant will have to start burning distillate fuel. It will have to switch off the gas and run on distillate, which, environmentally, is not great and also has a risk. Anyone who has worked in a power plant will know that the biggest time that things go wrong is when you move from one fuel source to another. I used to work in a business that had a power plant, and, usually, I would get a phone call from the plant manager telling me that his plant had fallen over on me because he had just moved a distillate and such and such a piece of kit had ceased working. So, the benefits for us are more system-wise, because one approach is to store the gas there, but it gives you 85-bar pressure in Northern Ireland. With 85-bar pressure, you both have the gas and you have the pressure to push it round the system.

Our extreme power station is at Coolkeeragh. Coolkeeragh power station will not be able to run on gas if we go down to contractual levels at Moffat. So, contractually, the National Grid gives Bord Gáis contractual pressure at Moffat. Historically, it has always been above that, but, if it did just give contractual and we just took contractual pressure off Bord Gáis at our outlying, you cannot get the gas to Coolkeeragh. You either have to build more pipelines or build compression, and it would fall to us and, therefore, the Northern Ireland consumer to build all of these. The big benefit with the store is that, if you get the likes of BP to build it, it is building it so that it can buy gas when it is cheap in the summer and sell it when it is expensive in the winter. For us, that is brilliant, knock your socks off. We get the pressure and we get the gas. That is what we are really after. For Northern Ireland, that is what is important, as opposed to differential gas —

Mr Dunne: It is just a big underground receiver, then.

Mr McIlroy: It is, yes.

Mr Dunne: Will that gas actually move out or is it to be stored there?

Mr Larkin: The idea of salt cavity stores as opposed to depleted fields or a mine is that it is flexible. These caverns, although they are about the size of a cathedral, are quite small in comparison with, say, a depleted field. You can effectively turn them around in the same day, so, for example, you might have a day where the power stations thought that they were not going to be run because lots of wind was forecast but at 6.00 am they say that they will be running and, not only that, it will be flat calm for another couple of days so they will all the gas that they can possibly be given. In such circumstances, there is no way that a tank that is basically running out in the North Sea can suddenly ramp all that up and get it through. So, the gas storage can switch around straight away like that, whereas a depleted field could not. Someone described a depleted field to me as being like a pin cushion with one pin in it. You are filling the whole depleted field through that, whereas the salt cavity storage is like an inverted pin, where the size of the store is not a lot bigger than what you drive in it. So, you have lots of small tightly packed things that you can turn round, so it provides flexibility.

The other point about gas is that, 15 years ago, it would not have mattered for Northern Ireland whether North Sea gas ran out. We did not use any gas. There was not a bit of gas used. Now, most of our electricity comes from gas. Sixty per cent of the gas that is used is in the power sector. The power sector is a big, big demand on it, and there are 150,000 customers sitting on gas. As much industry as we have is connected to it, so the economy is hugely reliant on it. In 1996, all of the gas came in through one pipe from Scotland. In 2013, all the gas comes in through one pipe in Scotland. The tank that is feeding it — i.e. in the North Sea — is running out. You are talking five to seven years to get the gas stores up and running.

We, as a gas transmission system operator, look 10 years into the future and at what we need. We either need gas pipes to the south of England — because the new gas is coming from the continent in LNG tankers into the south of England, where the demand is — or we need gas storage here on the

island. It is not just us. The whole island of Ireland is in the same situation. Britain is also in the same situation. Britain relied on the North Sea and is now looking to the continent. To a large extent, it is looking to LNG supplies from unstable regions and even America, which is thinking of trying to export some gas. Europe, as a whole, does not have enough indigenous gas to feed its supplies. The further west in Europe you go, the worse it gets. Not only does Northern Ireland not have its own gas, it does not have any other sort of fuel either.

We believe that this absolutely essential. The powers that be will say that it is very desirable and all the rest, but we think that it is absolutely essential. There is a great opportunity to get it built commercially, but it is still essential. If it does not happen commercially but we want gas supplies to continue, we will be looking at customers or some sort of regulated return to pay for new pipes, gas storage or some other way of reinforcing the supply. This is a great opportunity to do that; it is a win-win situation.

The Chairperson: Mr McIlroy, I want to pick up on what you said about the study carried out into the effects of brine on crustaceans and fish. Were there any material conclusions from that? Perhaps you could share the study with us at some stage.

Mr McIlroy: I am not an expert in that, but I will give you an outline of what they were trying to do. The water that comes out of the diffuser has a high concentration of salt. In the studies, they model what happens when that water comes out of the diffuser and goes out into the sea. They have analysis to say that, at a certain density of salt, within the first 50 metres, any creature that moves goes way and any that cannot move dies. So, within an area of 50 metres, any fish that does not swim out of the way will die. They do the analysis for the area out as far as 250 metres away. What they are saying is that the water that is too salty for things to survive should be within 50 metres. The studies say that, if you go any further, fish can survive the brine etc. Studies are done on flow projections and everything else. The reason that they did this monitoring was to prove that the flow projections were correct. When they looked at the crustaceans, what they found was exactly as they had thought. The immediate area was too salty for life, and there was nothing there. When they went to 100 metres, they could see fish again and the stuff in their lobster pots was alive.

Mr Larkin: Effectively, they said that nothing will be affected beyond 20 metres. They said, "OK. You are getting permission based on that, but you will not just go off to do it and see what happens. We want you to prove it. Put a lobster in there. If that lobster dies, you are shutting down." In fact, the findings were better than what they had put into their applications. We look at Aldbrough, because it has just happened in the last three years. We expect the exact same controls to be applied to the Islandmagee storage facility.

All the modelling says that there will be a negligible impact on the environment. However, it is not just about doing the modelling and being sent on your way. It is about monitoring it the whole way through. If any of the monitoring shows that what is happening is not what you expected to be happen and not what you have permission to happen, you are shut down; it is as simple as that. That is the best reassurance that anyone who is concerned about the process can be given. The modelling says that there will be a negligible impact, but you do not get approval based just on that modelling. It is about monitoring it and checking that that is exactly what happens. If it is not exactly what happens, all bets are off and you are shut down.

The Chairperson: Yes. I know that another Committee and Department are looking at a marine Bill at present. Clearly, your environmental consultants would do everything that they could in the context and framework of what could, potentially, arise from the marine Bill.

Mr Larkin: I think that this has changed the marine Bill. It will not come in until 2014. Perhaps, I am thinking about DETI. A DETI change is happening. I am not sure about that. Basically, as far as I understand it, the Department of the Environment and the Northern Ireland Environmental Agency will grant the consent on this. So, they will apply the appropriate legislation and tests.

The Chairperson: That is grand. Thanks for that.

Mr Flanagan: I did not think that there was as much interest in the Moyle interconnector. It is good to see that there is.

Robin asked you a very interesting question: if the Estonians came to you for advice, what would you tell them? If you were going to start the whole process again, would you do the same thing again or would you change it in some way?

Mr Larkin: With hindsight, we would buy a different cable. However, we are where we are. This is what we have got. It is what we bought. We just have to deal with it.

Mr Flanagan: Have there been improvements in the technology since you bought it?

Mr Larkin: Not particularly, no. As I said, this is unique. Well, the Estonians are putting in something very similar. That was the only one that had ever been put in anywhere in the world. It has not changed because there have not been any others. The point is that you would put two cables in. For example, the east/west interconnector is built. There are two cables; one is the plus and the other is the minus. They are separate cables. If they brought it in, there would be that cable and another cable. There would actually be a fibre optic cable as well. Everything is inside that cable. There is a wee tube in the middle of it which has six fibre optics in it as well. Everything is inside it. That is the unique bit. If we were to do it again, we would put more emphasis on doing something that is tried and trusted regardless of price, benefits or anything — a Mercedes diesel-type thing as opposed to the Ferrari, high-output injectors and everything else.

Mr Flanagan: Mercedes give problems, too.

Mr Larkin: Most of the electrics do.

Mr Flanagan: So I hear. I do not have one myself.

The Chairperson: You are looking for a Skoda.

Mr Larkin: A Skoda is, basically, a Volkswagen. We are getting off the topic.

Mr Flanagan: I hear that you are in line for one of them when there is a big reshuffle in the Executive. *[Laughter.]*

The Chairperson: Very good, Phil. That is why they use Skodas here; only the best.

Mr Flanagan: They are reliable. Paul also asked whether it would not be better to just replace the new cable. You kind of agreed with him. What is stopping you doing that?

Mr Larkin: There are other options. We need to ensure that it is actually the best option. There is no point in going out and replacing all the cables and, then, someone asking me in three years' time whether we had not thought about changing to a single 500 megawatt unit. We would say that we did, but we did not bother. Then, we would be asked why we did not do that and whether it would not have been more cost-effective, quicker and whatever else. We need to ensure that the long-term solutions, of which replacing the cables is the most obvious, are properly tested and challenged against any other possibilities that there are.

Mr Flanagan: You said that the interconnector saves customers £100 million a year. How was that figure calculated?

Mr Larkin: We commissioned a separate consultancy firm called Energy Links. It ran a model of the single electricity market. We kept in all of the data from the single electricity market. What has happened since 2008 is fact. You can look back and see what the prices were. Effectively, what it did was take the interconnector out of the model. It said, "What if the interconnector was not there and did not put its prices in?" Then, it ran the model again. It said that, in that circumstance, on a day when the interconnector was running, you would actually have run Ballylumford. On a particular day, you would have run the power station at Tarbert, Aghada or Poolbeg, and that would have made the price a particular amount. So, it came up with what the price would have been since April 2008 if the interconnector had not been there. That was the process. Obviously, the price varies from month to month.On average, it was over £100 million per annum.

Mr McIlroy: All the plants put in their price for each half hour. The market operator then puts them in what is called a stack. The cheapest will go on first, then the next, etc. The guy who is last sets the price for everybody. If you can do it for £30 a MW hour but the marginal plant is £50 a MW hour, everybody gets £50 a MW hour. That is how the market works. If someone brings that £50 down to £49 or £48, every single unit of electricity for that half hour is down by the £2 that that saves. Moyle goes in the stack and pushes everything else up. That is the first effect that it has. It was quite good. We thought about modelling it forward, because the guys have a very good model on the system. Aghada power station uses it, and DESA used to use it. We decided to model backwards, because, when you do that, you have the prices and the bids. Paddy quoted the benefits. In part of that period, we were off. If you did it for a period for which we were fully available, the number is probably going to be higher. All we had was the data since the market started, and we could do it in a way that we could stand over. We could explain to somebody the methodology for doing it with every single half hour and every single stack redone with Moyle out.

Mr Larkin: It is not surprising. Eirgrid has carried out studies to justify building the interconnector that it has just finished. That cost €600 million, which is massive. Other studies published on its website basically say that it would be well worth building two more interconnectors: one to France and another one to Britain. It is fairly clear that there are major benefits. If you were to ask what the benefits will be in the next five years, they are really difficult to determine. You just know that there are going to be benefits and that they are going to be big. It is hard to know exactly mow much in the next five years. Looking back over the past few years, it is fairly simple because you had an interconnector, so you can see what would have happened if you took it away.

Mr Flanagan: I am not disputing that there are obvious benefits to interconnection. A company such as Eirgrid has a vested interest in saying that would be a good thing to build more capital across the Irish Sea.

Mr McIlroy: We had not done any of the studies because we knew in our hearts that it was and we knew that Eirgrid had just spent €600 million. For that very reason, you say that it has a vested interest in building more. We need something factual that we are comfortable with and which proves the point. Before, if anybody had asked us, we would have referred to the studies that Eirgrid did and the fact that it spent €600 million doing it. We felt that, in that case, it was worth putting it down, getting the work done and quantifying it exactly.

It is part of the decision-making process. When you get to the point at which we make the decision and there is £60 million to be spent, you want to be able to say that you know that that £60 million is being well spent and that it will be returned in a very short time.

Mr Flanagan: The interconnector is primarily used for importing electricity, but there is considerable opportunity for exporting. Is it in Mutual Energy's interests to import energy as opposed to exporting it, or does it not matter to you which it is used for?

Mr Larkin: Mutual Energy does not buy or sell power. We do not own a scrap of power.

Mr Flanagan: Do you not receive a form of payment for the interconnector being used?

Mr Larkin: We supply the cables that connect Northern Ireland customers to GB power stations. The same as NIE supplies the cables that connect them to Northern Ireland power stations, we supply the cables that connect to GB.

Mr Flanagan: I presume that you receive a payment per unit of electricity across the interconnector.

Mr Larkin: The normal process is that customers pay a fee for having the cables. We are different from NIE because ours is congested; more people want to use our wires than what there is space. To resolve that — the EU lays out what you do — you have what are known as congestion auctions. All the people who want to use the interconnector bid for it, and the people who bid the most money get it. We do that in both directions; coming into Northern Ireland and going out of Northern Ireland. To give you an idea of the scale, coming into Northern Ireland, currently the bids are around £6 per megawatt hour, and going out of Northern Ireland the bids are less than 1p per megawatt hour. So that gives you an idea. There is huge interest from six or seven players. There are even traders like, for example, RWE npower which is not a supplier here, but trades power across the Moyle interconnector and buys capacity. Danske Commodities is just a trading floor; it buys space on Moyle

to trade power. There are also smaller, indigenous companies, such as ElectroRoute, which is a small company and a spin-off from Scottish and Southern Energy, that buys small amounts of power on the margins through Moyle. The price that firms pay at auctions is based on the difference in price between the two markets and, on coming this way, they buy cheap in Britain and can sell it dear over here. Firms want to do that; they do not really want to flow the other way. People buying the other way are taking a bit of a punt that the price might switch during the period. In fact, over the last while, the prices switch more and more. The price is set every half-hour, and every half-hour it changes. If, in the particular half-hour, it switches, they want to have the capacity so that they can sell it the other way. So they take a bit of a punt on it, but they are not prepared to pay very much. They offer 1p.

Mr Flanagan: What about those congestion auctions? How do they fit into what is essentially a price-regulated commodity?

Mr Larkin: Any revenue that we get through the auctions reduces anything customers have to pay. The Moyle interconnector costs, let us say for argument's sake, £20 million to run. If we get £20 million out of the auctions, there will be no charge on customers. If we get £5 million per year out of the auctions, £15 million will be charged to customers.

Mr Flanagan: What about those who are actually buying the power and trading in it?

Mr Larkin: If there was no congestion, there would be no auction revenue and traders would not pay anything for using the system. They would not pay anything directly but, obviously, the trader is taking it to a customer here, whom he has to charge for using it. The charge is for use of the system. If you move power in Northern Ireland, you pay a use-of-system fee, which includes paying for use of the Moyle interconnector. So, yes, the trader would pay for it ultimately.

Mr Flanagan: This is nothing really to do with Moyle, but I am hoping that you will be able to help me with it. You have an understanding of it. Say someone is paying £6 per megawatt hour to move energy across the interconnector. Do they then take the hit for that being an inflated price, compared with a different time of the day when it is ultimately sold on the customer, or will the customer end up paying more? Who makes up the difference? Ultimately, the power generators, the distributors and everyone else wants to get their share of the pie.

Mr Larkin: Take a wee example; an extreme example. Say you can buy power at £50 across the water and the price here is £100 at the moment. If you put an interconnector between the two, we know that there will be a fair bit of flow in there, but there will not be enough. There will be a bit of flow, and it will knock off the very expensive plant over here; but the price here will still be £75. So the guys coming in might buy at £50 now and sell at £75. It is not the £100, which was the price before the interconnector was there, because the interconnector pulls the price down a bit, but it is still £75. So there is £25 of profit to be made by buying there and selling it here. However, a load of people want to do that, so we are going to have to pay to get across the interconnector. So, we will have to bet against them. Maybe we will have to pay, say, £10 to get across the interconnector; the other £15 is in the trader's pocket. So the trader makes £15; the interconnector, £10; and the fact that the power has flowed in has brought down the market price from £100 to £75. So there are is a win across the board for everyone.

If you built more and more interconnection, the price would fall from £100 right down to £50, so, in that case, the prices would be balanced. The trader would still be buying and selling at £50, and he would not make any more money than he would if he had just sold it on the GB market. The interconnector does not get any revenue, but obviously customers get a huge benefit because the price has dropped from £100 right down to £50. However, for that, the customers have to pay for these wires. I hope that that helps.

The Deputy Chairperson: That was very helpful.

The plan is that there will be enough gas storage for 60 days. What is the comparable figure in Britain? What is the recommended gas storage?

Mr McIlroy: Mainland Europe would be in the 30 to 40-day category. Britain, for historical reasons because it has the North Sea, is down at about 10 days. Sixty days is too much. We referred at the

start to the fact that this store is too big for Northern Ireland. It needs to do the Republic of Ireland and Great Britain as well. Yes, it is 60 days for us and, from a security of supply perspective, that is absolutely outstanding for Northern Ireland. It just so happens that the geology is in Northern Ireland. This can output 22 million cubic metres a day (mcm/d). Northern Ireland normally takes four. It needs to get the rest of it either back to GB or, more likely, into the Republic of Ireland. It is way more. If you had only the Northern Ireland market, you could not build this facility.

The Deputy Chairperson: Are the continuing delays in the common arrangements for gas posing a problem for this project?

Mr McIlroy: The common arrangements for gas would have put the arrangements in place that this project could have used. If the common arrangements for gas were in place, that would have been what was needed, but you could put it outside the common arrangements for gas and that is what we have asked the regulators to do. We have told them that we know that there are problems with the common arrangements, but this specific project needs specific terms. We have told them to take out the bits that would have worked in CAG, prioritise them and get them done. The Ministers in both jurisdictions are keen to have storage and so on, the regulators are very keen to do it, but it is actually getting that movement, particularly in the Republic of Ireland. They now have judicial issues with Shannon LNG, which is suing them, and that is delaying their decisions. That is the type of thing that has a knock-on impact.

Mr Larkin: There needs to be cooperation between Belfast, Dublin and London. The track record shows that it is much more difficult to achieve something that needs people to work together across jurisdictions. While the regulators recognise the benefit and they are working together, it is very slow. Each jurisdiction also has its individual priorities, and it is difficult to keep a goal. The Ministers in both jurisdictions have given it their backing, but it will take encouragement and support from all sides. All areas where there is that interjurisdictional contact need to support this and say that this is something that we can do together. It is a win/win all round, but it involves a bit of effort. We need to commit to that effort and encourage our regulators to adopt it. This is just as important as all the other single-jurisdiction issues.

The Deputy Chairperson: Have you received all the permissions and assurances that you need from both Departments and both regulators?

Mr Larkin: The decisions have not been made yet. The work is ongoing, so, no, we have not got there yet. That is why I say it is slow, slow, slow. BP pretty much decided to come in to this project at the end of 2011, and it was pretty confident that the interjurisdictional arrangements aspect of the project was pretty much ticked off. When it came in, there were other things to achieve such as planning and various consents and all the rest. All of those things have been ticked off now, 18 months later. That regulatory issue is still not finished, so it makes sense and people understand what the arrangements need to be; it just takes a bit of effort. The problem is getting that sorted.

Mr A Maginness: Thank you, it has been fascinating, particularly your dialogue with Mr Frew. I want to ask about Islandmagee Storage Ltd. You are entering into an agreement with BP for the development of the storage project, which will cost around £400 million.

Mr Larkin: The £400 million is the cost of building the project. The project has not been given the green light by the developers yet. It is still in development; it is still going through the feasibility stage. BP has agreed to fund the development through to a point in time where a decision would be made as to whether to build it. The feasibility, the consents and everything else are in place but they will look at the market to determine whether the project will make money. Projects are developed all the time but decisions can be made not to go ahead with them. At this stage, it has been developed and has been built. BP has committed to the development up to a point in time when it will decide on going forward. It has an option to take a majority share in the company and it is funding all the development costs through to that point.

Mr A Maginness: BP is doing that, but does giving it a majority share not take away, in a sense, from your ethos as a mutual company?

Mr Larkin: I am pretty sure that our interest is on the record. We want to see gas storage built for Northern Ireland. We do not really need to have a long-term position in that arrangement. We do not need to be a shareholder in it. In fact, if a company came in tomorrow and said, "Here is £400 million,

we are building this now", we would say yes. All we want is gas storage for Northern Ireland. Our interest at this stage is to get the project developed and built.

From a company point of view, our long-term ambition for involvement in the project is to have the minimum amount of involvement that we need in order to get it built and operated properly. If the Regulator or government decide that it is going to be a commercial venture and they want a piece of it for Northern Ireland and they want Mutual Energy to remain involved for 5% or 10% of the company, we would be happy to do that. Our primary reason for being involved is not to make money out of the project but to see the thing built.

Mr McIlroy: The big advantages are that, physically, the gas is here and our network has the pressure. Once it is built, whoever builds it, the gas is here and the pressure is there and Northern Ireland will get what it needs. That is our objective.

Mr A Maginness: We are lucky that we have a unique geology in the Larne area.

Mr Larkin: That is it. We are blessed with the geology. It is like finding oil or whatever. You need the geology, and it is there.

Mr A Maginness: Does the Republic need this?

Mr Larkin: Yes. In the longer term, or for as long as gas remains a primary part of the energy mix, Europe as a whole needs more gas storage. Westminster knows that they need gas storage and sees that it is not coming forward commercially. They are looking to see what sort of incentive schemes they should put in place to try to get it built.

For example, they are looking at things such as putting an obligation on a gas supplier to have gas in store. They are worried about a cold spell or some problem with supply coming from Europe and the country freezing. It is as serious as that. They are asking what will happen if no one is storing gas. The response would be, "fingers crossed", to which they will say that they need more storage. In the past, we could rely on the North Sea because there was a load of gas in the ground. Over the next 10 years that store will not be available so they are trying to find incentives.

The South definitely needs more storage, as does Britain. There are only a few locations where there is substrata that makes building worthwhile. It needs to be onshore; there is no point in having it 20 miles offshore because you would need a large offshore industry to get to it.

On the island of Ireland, Islandmagee is the only place where there are salt strata, or it is the only place we know about where they come on shore. In GB, there are a couple of places — around Cheshire, and in and around Aldborough and Hornsea in Yorkshire, which Gerard talked about. I have to say that the salt in those areas is closer to the surface and is not as good. You cannot put as high a pressure on it, so it costs more to get the same amount of capacity. Salt- and infrastructure-wise, the location of Islandmagee is absolutely ideal. BP has not got a particular allegiance to Northern Ireland, but it believes that gas storage is needed on these islands. There would be nothing to stop BP — a name and a company like that with the muscle it has — getting involved in any project. However, out of all the projects on these islands, Islandmagee is the really interesting one.

Mr McIlroy: In the UK as a whole, there are four or five possible locations, and those projects are at planning stage etc. BP has just built one in Germany. It has looked at all those projects. One is 30 miles from the coast, and the brine outlet for the one in Cheshire — I think that it is the Cheshire one; my geography is not great — would have to go into the Mersey, which is 30 kilometres away. The other ones are the deepest or the shallowest in the world.

Mr Larkin: Gas pipes are not close by.

Mr McIlroy: The gas pipes are not near to an electricity supply, so they would have to build kilometres of overhead lines or kilometres of gas pipes. It then looked at the one in Northern Ireland, which is literally beside gas transportation and beside the strongest point of electricity generation probably on the whole island, with the perfect depth of salt. From its perspective, the only downside is —

Mr Larkin: There is no market.

Mr McIlroy: It is the market size. From an engineering perspective, BP's engineers love it. When you talk to them about it, you see the lights in their eyes. We need the arrangements because Northern Ireland as a market is too small. It is a three-market arrangement, and that is difficult. From talking to the guys further up in BP, we know that they see the Northern Ireland market as a risk. Part of our role is to try to convince those guys that Northern Ireland is the place to do this, that it is a great project and that it will help their European ambitions. BP balances its portfolio across Europe. It has places in Italy and Germany, and it is looking for one in the UK. It has picked us, and we want to try to deliver it.

Mr A Maginness: I have one last question. Is there any gas production in the South of Ireland? I know that Corrib is coming.

Mr Larkin: Kinsale obviously started in the early 1970s. It is running down and is nearly off. In fact, the last bit of production is being used as storage to pump it up a wee bit in the summertime and then let it come down. It is really on the run down. I think that they are talking about that happening in the next three years. It is petering out.

Mr A Maginness: What about Corrib?

Mr Larkin: Corrib is coming on. It covers, I think, a trillion cubic feet. It is a substantial reservoir. The only thing I would say is that it has a fast fall-off rate, so within five years, there will be very little profile coming out of it, and within eight years, it will be pretty much empty. The intention is to blast it out as quickly as they can. I guess that they have waited long enough to get it out of the ground, so they will take it out to market as fast as they can.

Mr A Maginness: OK. Thank you very much.

Mr Newton: Given what you said, there are obviously a lot of things going for the project in respect of the geology and so forth, as well as the 20 full-time and 200 temporary jobs that it would create. You have done all the financial modelling for this. In your submission, paragraph 4.2, on the issue of major investment, states:

> *"Under the terms of a Joint Appraisal Agreement, BPGM has agreed to fund the activities necessary to develop the project, including the ... borehole".*

That is really where it finishes, is it not?

Mr McIlroy: Yes; it very much comes to a decision point.

Mr Newton: You also state:

> *"Importantly, the project is currently being developed as a commercial venture, with little or no cost incurring to the energy consumers."*

What will "little" actually look like?

Mr McIlroy: Currently, "little" is £35. We did a whip-round around the board to collect our £35. We had an arrangement with the partners that we would have a 35% stake in a £100 company, so that is our £35.

All the money was coming from them. If we get to the point of selling, they are not going to let us go in for £35 at the end. As Paddy said, at some point a decision will have to be made about whether we stay in or go out. There is no risk at the minute. At that decision point, it will be for us to say that we are coming in. BP's cost for development was the premium that it paid for being given the option, but before that InfraStrata carried the costs. So, the dirty big environmental impact assessment and all the work by the consultants was all paid for by InfraStrata.

If we want to stay in, we will have to pay our 35% to InfraStrata. InfraStrata is a development company of geologists and drillers. It is not an operational company. When a project gets to that point, the developer company moves out and another operational company — an RWE, a Centrica or another big party — comes in and pays a premium for a project that has been developed and is ready to go. So, you will end up with a consortium of BP, one or two other major gas or electricity players

and us if we decide to stay in. We will then have to pay up the difference. If we do not need to stay in we will walk away and I think that we will get our £35 back too.

Mr Larkin: In fairness, the "little" may also include some network costs. There are things that are incidental to the project. For example, if there is a lot of wind on the island and the storage wants to empty, the island will not be able to use it and it will have to flow back to Britain.

At the minute, no gas flows into Britain. Incidentally, the transmission system in GB does not have any mercaptan in it so you cannot smell a leak on the transmission system. That is common throughout Europe. We are not common and our gas has the mercaptan in the transmission system. However, you cannot have it both ways. If we were sending gas back, we might have to move the mercaptan dosing points to city gates and put them on the distribution system. There might be things like that that have nothing to do with the project but with people flowing gas back and forward. It does not even have to be this project. If Corrib Natural Gas wanted to send gas back in it could not be prevented from doing that under EU rules. However, if you have to do that, you have to fall in line with what happens across the water and in the rest of Europe. There are some small costs for things like that.

Mr Newton: Am I right that we are only at a very early stage with this project and that the true costs are not yet know?

Mr Larkin: Yes.

The Chairperson: Thanks for that, Robin. Mr Larkin and Mr McIlroy thanks very much for your time and for being with us today. We look forward to hearing from you again. That was very informative. My apologies for missing the first part of the meeting.

Mr Larkin: Thank you very much for asking such good intelligent questions about what we do.